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EXAMINER				
ROGERS, MARTIN K				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,536

Applicant(s)

CHO, JA YEON

Examiner

MARTIN ROGERS

Art Unit

1747

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6, 8, 11 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 8, 11, and 25-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1-3, 6, 8, 11, and 25-27 are objected to because of the following informalities: In regard to claims 1 and 6, the first and second lines of the claims require a limitation of "...manufacturing a PET container by continuous injection blow mold..." The examiner notes that the phrase "continuous injection blow mold" describes an object whereas the phrase "continuous injection blow molding" describes a process. Because Applicant is claiming a process of forming a container, the examiner believes that a small grammatical error was made and that Applicant intended to require -- "...manufacturing a PET container by continuous injection blow *molding*... --. Appropriate correction is required.

Claims 2, 3, 8, 11, and 25-27 are objected to for being dependent on claims 1 or 6.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-3, 6, 8, 11, and 25-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claims 1 and 6, the seventh line of the claims requires forming a container body with an "elliptical hollow portion of uniform thickness..." The way the claims are phrased makes it appear that Applicant is requiring that the cross-section of the container be both elliptical and uniform in dimensions. However, an ellipse, by definition, has a non-constant (non-uniform) cross-sectional shape. Based on the specification of the present application, the examiner has assumed that Applicant intended to require that the container have an elliptical cross section with walls that are uniform in thickness. The claims were examined under this interpretation.

Claims 2, 3, 8, 11, and 25-27 are rejected for being dependent on claims 1 and 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 6, 11, and 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinichi et al. (Japanese Kokai JP8323845 already of record) in view of Uhlig (USP 3740181), Hagano et al. (Pre-Grant Publication 2002/0125254), Maruniak et al. (USP 3817390), Farrell (USP 4038006), Mojonnier et al. (USP 3366290), Scott et al. (Pre-Grant Publication 2004/0134171), Cox (USP 4291915), Jabarin (USP

4522779), Hudson et al. (USP 3892830), Wallace (USP 2936920) and Reil (USP 5191988).

In regards to claims 1, 6, 22, and 23 Shinichi discloses a method for manufacturing a PET ([0004]) container (Figure 14) during a continuous injection blow molding process ([0031]) comprising the steps of blow molding a preform with air (Column 2, line 53) in a cavity (Figure 12) that has a handle forming portion for compressing both sides of the bottle to form the handle section (Figure 12), conveying the preform by clamping its neck (Figure 12: 82), creating a hole in the compressed handle area ([0096]), and using a bonding apparatus for bonding a cut-off portion remaining in the handle section after cutting off the compressed portion of the handle section (Figure 17). In the invention of Shinichi, the apparatus used to form a hole in the handle area is not disclosed and the unbonded flanges of the handle area are sealed by using ultrasonic welding of a prefabricated piece ([0099] and [0100]).

Uhlig discloses that when blow molding a handled container, it is beneficial to have an intermediate blowing step in which the parison is blow molded into a cavity that creates a shape which allows the handle section to be compressed (Figure 12) for the benefit of creating a desirable amount of biaxial stretching in the handled container (Column 1, lines 45-49). Uhlig further discloses that it was well known in the art at the time of the invention to use a mold punch (Figure 17) to remove the compressed portion of a container handle.

Hagano discloses that it was known in the art to injection mold around the seam of a blow molded container by compressing the cut-off portion and overmolding the edges with an injection resin ([0090]). One of ordinary skill in the art at the time of the invention would have appreciated that by injection molding the sealing member directly onto the container of Shinichi rather than prefabricating it and then welding it in place, the amount of equipment, the production time, and the need to store additional pre-made parts would be reduced.

Additionally, Maruniak also discloses that sealing flanges through insert injection molding around compressed flanges (Figure 3: 17) is well known and suggests to one of ordinary skill in the art that through the use of insert injection molding, an improved seal can be created with fusion of the flange to the injected resin (Column 3, lines 44-45). Therefore, one of ordinary skill in the art would have also found it obvious to seal the flanges of the above combination with the insert injection molding required by the claims for the benefit of achieving the improved seal disclosed by Maruniak.

Therefore, in order to create a biaxially stretched container while saving on equipment costs and processing time, one of ordinary skill in the art would have found it obvious to use the preliminary blow molding step taught by Uhlig to create the container disclosed by Shinichi, cut the compressed portion of the container taught by Shinichi with the punch disclosed by Uhlig, and then bond the cut-off portions with the injection mold taught by Hagano or Maruniak.

This combination does not disclose that the handle forming portion of a third blow mold be configured to penetrate the body of the bottle in a handle forming area.

Farrell suggests to one of ordinary skill in the art at the time of the invention that once an integral handle is formed into a container and sealed (Column 1, lines 27-30), it is possible to give it a desired shape (Column 5, lines 26-30) by blow molding the handled container in a mold with sections that contact each other through the handle aperture (Figure 5: 16). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a mold with opposing protrusions which contact through the handle aperture in order to mold the handle portion of the finished container into a different shape.

The previous combination does not disclose that the individual blow molds are temperature controlled.

Jabarin discloses that by expanding a container in three different temperature-controlled blow molds (Column 6, line 52 through Column 7, line 21), a desired degree of crystallinity of the container can be controlled for during the molding steps (Column 3, line 56) and the container can be imparted with improved physical properties (Column 8, line 5 and Column 11, line 18 and Table I). Therefore, it would have been obvious to a skilled artisan to use temperature controlled molds for the blow molding steps of the above combination of references for the benefit of controlling the crystallinity of the containers as well as imparting the containers with improved mechanical properties (as disclosed by Jabarin).

The combination of references does not expressly disclose the specific volume sizes in terms of percentage of final volume at each of the intermediate blowing operations. However, Uhlig makes it clear that the degree of intermediate expansion is

used to control biaxial orientation (Column 1, lines 45-49). Furthermore, Jabarin discloses that the degrees of expansion in each of the intermediate molds will affect the mechanical properties of the container (Column 7, lines 46-68). Therefore, a skilled artisan would have used routine experimentation to achieve the relative degrees of expansion being claimed by Applicant for the benefit of creating a product with a desired amount of orientation and desired mechanical properties (as disclosed by Uhlig and Jabarin).

The combination of references does not disclose that the final shaping of the container embed the cut-off portion remaining in the handle section.

Mojonnier discloses that a bonded flange can cause discomfort in the handle region of a container and that the comfort can be improved by bending the flange (Column 3, lines 41-45), however there still remains a possibility that the hand of a user will come in contact with the protrusion (Figure 4).

Scott discloses that protrusions in a gripping area can cause discomfort to a gripper's hand and that the comfort can be improved from recessing the protrusion out of contact with the hand ([0254]).

Cox provides further evidence that it is known to improve the comfort of a surface by recessing uncomfortable elements so that they do not project from a contact surface (Column 2, lines 23-25). Therefore, in order to further improve the comfort of the handle area, one of ordinary skill would have found it obvious to form a recess during the handle-shaping step of the above combination such that the protruding bonding flange

does not project from the gripping surface of the handle (as disclosed by Scott or Cox), therefore improving the comfort of the handle.

Wallace and Reil disclose that there is a reasonable expectation of success for recessing the bonding seam of a container so that it does not affect the exterior surface (Wallace Figure 4) (Reil Figure 8).

It is the examiner's position artisan would interpret the intermediate blow mold of Uhlig as reading on the limitation of an "elliptical hollow portion," as required by the claims (Figure 3: 50a and 50b). In any event, the intermediate mold of Uhlig certainly forms a container body with a generally oblong cross-section (a cross section with a major and minor axis) and it is the examiner's position that the specific shape of the container is a matter of aesthetic and design choice. Containers with oval (elliptical) bodies are known, as evidenced for example by the Abstract of Hudson.

Hudson further discloses that it is known in the art that when creating a blow-molded container with oblong cross-section, including an oval (ellipse-shaped) cross-section (Abstract), that the preform should be preheated to a higher temperature in the region corresponding to the minor axis of the blow mold than the region corresponding to the major axis of the blow mold (Abstract) for the benefit of achieving a uniform wall thickness (Abstract). Therefore, in order to achieve a uniform wall thickness in the wall of the container, a skilled artisan at the time of the invention would have found it obvious to use the perform heating profile being required by the claim (as disclosed by Hudson).

In regards to claims 2 and 11, Hagano further discloses an insert inject mold having a compressing member for compressing both sides of a cutoff portion (Figure 9: 67). Maruniak also discloses that the flanges be compressed during insert injection molding (Figure 3: 17).

In regards to claim 25, Hagano further discloses an insert injection molding process in which an intermediate portion of the seam is compressed and then bonded with injection molding (Figure 9). Maruniak also discloses an insert injection molding process in which an intermediate portion of the seam is compressed and then bonded with injection molding (Figure 3).

In regards to claim 26, the apparatus of the previous combination is capable of the intended use of allowing ends of the seam flanges to be separated from each other.

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the previous combination of Shinichi et al. (Japanese Kokai JP8323845 already of record), Uhlig (USP 3740181), Hagano et al. (Pre-Grant Publication 2002/0125254), Maruniak et al. (USP 3817390), Farrell (USP 4038006), Mojonier et al. (USP 3366290), Scott et al. (Pre-Grant Publication 2004/0134171) Cox (USP 4291915), Jabarin (USP 4522779), Hudson et al. (USP 3892830), Wallace (USP 2936920), Reil (USP 5191988) as applied to claims 1 and 6 above, and further in view of Fischer et al. (USP 4123217), Carver Jr. et al. (USP 3754489), Muzzy (USP 5360661).

In regards to claim 3, the previous combination does not disclose that the mold punch has a heater installed on an end of the mold punch.

Fischer discloses installing a heater at the end of the mold punch (Column 2, line 65) for the benefit of allowing a cooled blow mold to be used which creates a cleanly-formed handle region (Column 2, lines 66-68). Although Fischer is concerned with punching a handle into a parison that has already been heat bonded within the handle region, one of ordinary skill in the art at the time of the invention would have been motivated to apply the teachings of Fischer to the cutting step disclosed by Shinich for the benefit of creating a clean shear in the handle area, preventing any stretching or deformation of the parison which might otherwise occur. It is the examiner's position that the combination of references is capable of the intended use of operating at the temperature being claimed by Applicant. Furthermore, it is the examiner's position that it is within the ability of a skilled artisan to use routine experimentation to achieve the optimum operating temperature for the device.

In any event, Carver suggests to one of ordinary skill in the art that a plastic-severing apparatus should be heated to a temperature that is at or slightly above the melting temperature of the plastic in order to facilitate the cutting process but not decompose the plastic (Abstract). A skilled artisan would appreciate that PET has a melting temperature of approximately 250°C, as evidenced by Muzzy (Column 14, line 60). Therefore, a skilled artisan at the time of the invention would have found it to use an operating temperature slightly above that of PET for the mold punch (as required by

the claims) for the benefit a facilitating the cutting of the plastic without decomposing the plastic (as disclosed by Carver).

In regards to claim 8, the previous combination does not teach that use of a mold punch having a heater installed on its end when the parison is thick.

Fischer discloses installing a heater at the end of the mold punch (Column 2, line 65) for the benefit of allowing a cooled blow mold to be used which creates a cleanly-formed handle region (Column 2, lines 66-68). Although Fischer is concerned with punching a handle into a parison that has already been heat bonded within the handle region, one of ordinary skill in the art at the time of the invention would have been motivated to apply the teachings of Fischer to the cutting step disclosed by Shinichi for the benefit of creating a clean shear in the handle area, preventing any stretching or deformation of the parison which might otherwise occur. It is the examiner's position that it is within the ability of a skilled artisan to use routine experimentation to achieve the optimum operating temperature for the device.

In any event, Carver suggests to one of ordinary skill in the art that a plastic-severing apparatus should be heated to a temperature that is at or slightly above the melting temperature of the plastic in order to facilitate the cutting process but not decompose the plastic (Abstract). A skilled artisan would appreciate that PET has a melting temperature of approximately 250°C, as evidenced by Muzzy (Column 14, line 60). Therefore, a skilled artisan at the time of the invention would have found it to use an operating temperature slightly above that of PET for the mold punch (as required by

the claims) for the benefit a facilitating the cutting of the plastic without decomposing the plastic (as disclosed by Carver).

It is the examiner's position that it is obvious to use the heated press disclosed by Fischer for essentially any container thickness. The thickness of the container is a design choice that one of ordinary skill in the art at the time of the invention would have modified to adjust the aesthetics and structural strength of the container.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over the previous combination of Shinichi et al. (Japanese Kokai JP8323845 already of record), Uhlig (USP 3740181), Hagano et al. (Pre-Grant Publication 2002/0125254), Maruniak et al. (USP 3817390), Farrell (USP 4038006), Mojonner et al. (USP 3366290), Scott et al. (Pre-Grant Publication 2004/0134171), Cox (USP 4291915), Jabarin (USP 4522779), Hudson et al. (USP 3892830), Wallace (USP 2936920), (USP 5191988) as applied to claims 1 and 6 above, and further in view of Perea (USP 5957415).

In regards to claim 27, the previous combination does not disclose separating the flanges before the overmolding process.

Perea discloses that by bending a flange, the anchor force of a flange within an overmold can be improved (Column 2, lines 18-21). One applying the teachings of Perea to the joined flanges of the previous combination would find it obvious to bend one or both of the flanges in the handles area of the container such that they become

encapsulated by the overmold and anchored therein (as disclosed by Perea). This bending would result in the flanges becoming separated).

Response to Arguments

Applicant's arguments with respect to claims 1-3, 6, 8, 11, and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN ROGERS whose telephone number is (571)270-7002. The examiner can normally be reached on Monday through Friday, 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin Rogers/

/Richard Crispino/
Supervisory Patent Examiner, Art Unit 1747